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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,812	01/12/2004	George Gerpheide	0668.CIRQ.DV1	1691

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EXAMINER
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PERVAN, MICHAEL

ART UNIT	PAPER NUMBER
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2629

DATE MAILED: 12/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/756,812	<b>Applicant(s)</b> GERPHEIDE ET AL.	
	<b>Examiner</b> Michael Pervan	<b>Art Unit</b> 2629	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) <sup>43</sup>~~6-86~~ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 43-86 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/25/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first, second, third and fourth planes must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

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2. Claim 72 is objected to because of the following informalities: in line 5 "the an underside" should instead be –an underside–. Appropriate correction is required.
3. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 86 has been renumbered 85. For the purposes of examination claim 85 will depend on claim 84.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 43-64 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In regards to claim 43, it recites among other things a touchpad having a common sensing electrode, first and second electrode arrays and a water electrode disposed in a first through fourth plane. Even though page 13, lines 18-21 of the specification refers to a touchpad having a plurality of electrodes disposed in a plurality

of electrode planes or layers, it is unclear from the applicant's disclosure as to how the four electrodes are disposed into four different planes.

In regards to claim 52, it recites among other things a touchpad having a common sensing electrode, first and second electrode arrays and a water electrode disposed co-planar with each other. However page 13, lines 18-21 of the specification refers to a touchpad having a plurality of electrodes disposed in a plurality of electrode planes or layers, therefore it is unclear from the applicant's disclosure as to how the four electrodes are co-planar with each other.

In regards to claim 54, it recites among other things a touchpad having a common sensing electrode, first and second electrode arrays and a water electrode disposed co-planar with each other. However page 13, lines 18-21 of the specification refers to a touchpad having a plurality of electrodes disposed in a plurality of electrode planes or layers, therefore it is unclear from the applicant's disclosure as to how the four electrodes are co-planar with each other.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 45-50, 54 and 65-72 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regards to claim 45, it recites among other things a water electrode being comprised of a plurality of electrodes. A single electrode cannot be made of multiple electrodes. Therefore, the claim is indefinite, since it is unclear whether there is a

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plurality of electrodes called water electrodes or a single electrode called a water electrode.

In regards to claim 54, it recites among other things the steps of determining whether the object on the surface of the touchpad is moisture or a pointing object and compensating for the moisture. Therefore, even if it is determined that the object on the surface of the touchpad is a pointing device and not moisture, the step of compensating for moisture still takes place. Since the step of compensation always takes place, the step of determination is no longer required because it does not matter if it is determined that the object is a pointing object or moisture. Therefore, the claim becomes indefinite because it is unclear if the determination step should be removed or keep the determination step and only perform the compensation step when the object on the surface of the touchpad is determined to be moisture and not a pointing object.

In regards to claim 65, it recites among other things ignoring the affects of at least one droplet of water disposed on a surface of a touchpad, determining if the object on the surface of the touchpad is a pointing object or a droplet of water and compensating for moisture. The claim is indefinite because it is unclear if the water droplet is being ignored or compensated for. Also, ignoring the affect of the water droplet does not remove affect, therefore any errors caused would remain. Finally, it is unclear if the step of compensation if for moisture or a droplet of water.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 65-85 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshikawa et al (US 4,556,871).

In regards to claims 65 and 75, a method for minimizing the effect of moisture on a surface of a capacitance sensitive touchpad, said method comprising the steps of:

(1) providing a plurality of electrodes configured so as to detect the presence of at least one object on a touchpad surface (Fig. 2 and col. 3, lines 39-43);

(2) determining whether the at least one object on the touchpad surface is moisture or a pointing object (col. 4, lines 48-55); and

(3) compensating for moisture when detected to thereby provide more reliable touchpad operation (col. 2, lines 36-55 and col. 4, lines 18-46; even if moisture (water) is detected, since all electrodes receive the same phase and voltage no current flows between electrodes and therefore touchpad operation remains reliable).

In regards to claims 66 and 76, the method as defined in claim 75 wherein the method further comprises the step of analyzing capacitive coupling between the at least one object and the plurality of electrodes to thereby determine if the at least one object is moisture or a pointing object (col. 3, lines 17-36; by virtue of being a capacitive touchpad, capacitive coupling is analyzed to determine if a touch is present or not).

In regards to claims 67 and 77, the method as defined in claim 76 wherein the method further comprises the step of determining if capacitive coupling between the at least one object and the plurality of electrodes has increased or decreased (col. 3, lines

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17-36 col. 4, lines 48-55; by virtue of being a capacitive touchpad, a change in capacitive coupling changes the voltage in the detecting circuit, which determines if a touch is sensed).

In regards to claims 68 and 78, the method as defined in claim 77 wherein the method further comprises the step of compensating for the at least one object if capacitive coupling has increased because the at least one object is moisture (col. 4, lines 18-55; by applying the same voltage to the selected and non-selected electrodes, the affect of moisture is compensated for and removed).

In regards to claims 69 and 79, the method as defined in claim 78 wherein the method further comprises the step of compensating for the at least one object by removing its affect on measurements made to detect or track the presence of the pointing object (col. 4, lines 18-55).

In regards to claims 70 and 80, the method as defined in claim 79 wherein the method further comprises the steps of:

(1) detecting movement of the at least one object that has been previously compensated for (Fig. 2 and col. 5, lines 1-17; it is inherent to continuously detect the location of objects on the touchpad); and

(2) recompensating for the affect of the at least one object on the touchpad surface when movement of the at least one object occurs (col. 4, lines 18-55; it is inherent that recompensation take place, since the affect of the moisture present may have changed).



In regards to claims 71 and 81, the method as defined in claim 80 wherein the method further comprises the steps of:

(1) detecting a plurality of objects that are determined to be individual droplets of moisture (Fig. 2 and col. 5, lines 1-17; it is inherent to detect all objects present on the touchpad and determine if compensation is needed); and

(2) compensating for each of the plurality of objects determined to be individual droplets of moisture (col. 4, lines 18-55; it is inherent to compensate for each individual object determined to be moisture).

In regards to claims 72 and 82, the method as defined in claim 81 wherein the method further comprises the step of increasing capacitive coupling between the plurality of electrodes and the at least one object by disposing the plurality of electrodes immediately adjacent to the an underside of the touchpad surface to thereby minimize distance between the plurality of electrodes and the touchpad surface (Fig. 1).

In regards to claim 73, a capacitance sensitive touchpad that improves performance by compensating for moisture on a surface of the touchpad, said touchpad comprising:

a plurality of electrodes configured so as to detect the presence of at least one object on the touchpad surface (Fig. 2 and col. 3, lines 39-43);

a detection circuit for determining when the at least one object is moisture or a pointing object on the surface of the touchpad (Fig. 2 and col. 3, lines 50-58; the impedance due to moisture between electrodes is substantially negligible, therefore the change in voltage due to a pointing object is much greater than that of moisture); and

a compensation system for compensating for moisture when the detection circuit determines that the at least one object is moisture (col. 4, lines 18-55; the affects of moisture are made negligible by applying the same voltage to both selected and non-selected electrodes).

In regards to claim 74, the capacitance sensitive touchpad as defined in claim 73 wherein the plurality of electrodes further comprises:

a common sensing electrode (Fig. 2, 111a)

an array of first (X) and second (Y) drive electrodes for driving a signal to the common sensing electrode (col. 3, lines 39-43); and

a water electrode (non-selected electrodes) for capacitively coupling to the moisture on the touchpad surface (col. 4, 18-47).

In regards to claim 83, the method as defined in claim 82 wherein the method further comprises the step of:

(1) providing a common sensing electrode as one of the plurality of electrodes (Fig.1 111a);

(2) providing an array of first (X) and second (Y) drive electrodes as arrays of the plurality of electrodes for driving a signal to the common sensing electrode (col. 3, lines 39-43); and

(3) providing a water electrode as one of the plurality of electrodes for capacitively coupling to the moisture on the touchpad surface (col. 4, lines 18-47).

In regards to claim 84, a capacitance sensitive touchpad having a touchpad surface, the capacitance sensitive touchpad comprising:

a plurality of electrode arrays (col. 3, lines 39-43);

the plurality of electrode arrays configured so as to capacitively detect the presence of an object on the touchpad surface (Fig. 2 and col. 3, lines 39-43);

a touch sensing circuit, connected to the plurality of electrode arrays, that determines the presence and location of the object on the touchpad surface (Fig. 2 and col. 5, lines 1-17); and

immediately adjacent to the an underside of the touchpad surface to thereby minimize distance between the plurality of electrodes and the touchpad surface (Fig. 1).

In regards to claim 85, the capacitance sensitive touchpad as defined in claim 84 wherein the plurality of electrode arrays comprises at least one water electrode that capacitively couples to moisture on the surface of the touch pad (col. 18-47).

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art (Cutler et al US 4,291,303) is deemed relevant since it discusses accounting for water on the surface of a touchpad.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pervan whose telephone number is (571) 272-0910. The examiner can normally be reached on Monday - Friday between 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MVP  
Dec. 1, 2006

AMR A. AWAD  
SUPERVISORY PATENT EXAMINER  
